

Amendment to Claims

This listing of Claims will replace all prior versions and listings of claims in this Application.

Listing of Claims

Claim 1. (CURRENTLY AMENDED) A method of controlling packet transmission in a power line communication (PLC)-based local area network (LAN) comprising:

providing a PLC ~~control~~ central coordinator in the PLC LAN for managing allocation of PLC LAN resources; and

providing, for any packet traversing the PLC LAN, a destination station MAC address, a source station MAC address, and a temporary equipment identifier (TEI) for the transmitting PLC station.

Claim 2. (CURRENTLY AMENDED) The method of claim 1 which includes using ~~the a~~ ConnectionID in place of a MAC addresses for any packet while the packet is traversing the PLC LAN.

Claim 3. (ORIGINAL) The method of claim 1 which includes providing a PLC MAC bridging device for storing information about the source station and the destination station for a connection at the PLC bridge device.

Claim 4. (ORIGINAL) The method of claim 3 wherein the PLC MAC bridging device caches a source TEI and a source 48-bit MAC address of all broadcast data packets received from other bridge devices on the same PLC LAN.

Claim 5. (ORIGINAL) The method of claim 3 wherein a PLC MAC bridge establishes a connection for bridged traffic only when traffic from a non-PLC LAN source station is received for a destination station on the PLC LAN where the destination station's TEI, bridge TEI and destination station 48-bit MAC address are cached in the bridge.

Claim 6. (ORIGINAL) The method of claim 3 wherein a PLC MAC bridge establishes a connection for bridged traffic only when traffic from a PLC LAN source station is received for a destination station not on the PLC LAN where the bridge TEI and destination station 48-bit MAC address are cached in the bridge.

Claim 7. (ORIGINAL) The method of claim 1 which includes establishing a unique connection for every pair of stations that cross a PLC MAC bridge.

Claim 8 (ORIGINAL) The method of claim 1 which includes bridging packets across the PLC LAN only in PLC bridging devices.

Claim 9. (ORIGINAL) The method of claim 1 which includes removing 48-bit MAC addresses of the MAC header for bridged packets.

Claim 10. (ORIGINAL) The method of claim 9 which includes interworking the bridged packets between the PLC LAN and any non-PLC LAN using the ConnectionID and TEIs only in the PLC LAN and using 48-bit MAC addresses outside the PLC LAN.

Claim 11. (ORIGINAL) The method of claim 10 wherein said interworking of packets from a non-PLC LAN by a bridge device includes the re-addressing of the packet by replacing the source 48-bit MAC address and the designation 48-bit MAC address with a ConnectionID, which is contained in the ConnectionID field in the MAC Header.

Claim 12. (ORIGINAL) The method of claim 10 wherein, for packets which are transmitted from the PLC-LAN onto a non-PLC LAN across a bridge device, interworking the packets, including removing the PLC MAC header and forming the LAN MAC header containing the source station 48-bit MAC address and the destination 48-bit MAC address.

Claim 13. (ORIGINAL) The method of claim 1 which includes, for packet traffic transmitted intra-PLC, identifying a packet's source station and destination station by inspecting the ConnectionID field in the PLC MAC header and referencing a connection table.

Claim 14. (CURRENTLY AMENDED) A method of controlling packet transmission in a power line communication (PLC)-based local area network (LAN) comprising:

providing a PLC ~~control~~ central coordinator in the PLC LAN for managing allocation of PLC LAN resources;

providing, for any packet traversing the PLC LAN, a destination station MAC address, a source station MAC address, and a temporary equipment identifier (TEI) for the transmitting PLC station; and

removing 48-bit MAC addresses of the MAC header for bridged packets, and

interworking the bridged packets between the PLC LAN and any non-PLC LAN using the a ConnectionID and TEIs only in the PLC LAN and using 48-bit MAC addresses outside the PLC LAN

Claim ~~14~~ 15. (CURRENTLY AMENDED) The method of claim ~~13~~ 14 wherein a PLC MAC bridge establishes a connection for bridged traffic only when traffic from a non-PLC LAN source station is received for a destination station on the PLC LAN where the destination station's TEI, bridge TEI and destination station 48-bit MAC address are cached in the bridge; and wherein a PLC MAC bridge establishes a connection for bridged traffic only when traffic from a PLC LAN source station is received for a destination station not on the PLC LAN where the bridge TEI and destination station 48-bit MAC address are cached in the bridge.

Claim ~~15~~ 16. (CURRENTLY AMENDED) The method of claim ~~13~~ 14 which includes providing a PLC MAC bridging device for storing information about the source station and the destination station for a connection at the PLC bridge device, wherein the PLC MAC bridging device caches a source TEI and a source 48-bit MAC address of all broadcast data packets received from other bridge devices on the same PLC LAN.

Claim ~~16~~ 17. The method of claim ~~13~~ 14 wherein said interworking of packets from a non-PLC LAN by a bridge device includes the re-addressing of the packet by replacing the source 48-bit MAC address and the designation 48-bit MAC address with a ConnectionID, which is contained in the ConnectionID field in the MAC Header; and wherein, for packets which are

transmitted from the PLC-LAN onto a non-PLC LAN across a bridge device, interworking the packets, including removing the PLC MAC header and forming the LAN MAC header containing the source station 48-bit MAC address and the destination 48-bit MAC address.

Claim ~~17~~ 18. The method of claim ~~13~~ 14 which includes establishing a unique connection for every pair of stations that cross a PLC MAC bridge.

Claim ~~18~~ 19. (CURRENTLY AMENDED) The method of claim ~~13~~ 14 which includes bridging packets across the PLC LAN only in PLC bridging devices.

Claim ~~19~~ 20. (CURRENTLY AMENDED) The method of claim ~~13~~ 14 which includes, for packet traffic transmitted intra-PLC, identifying a packet's source station and destination station by inspecting the ConnectionID field in the PLC MAC header and referencing a connection table.

Claim ~~20~~ 21. The method of claim ~~13~~ 14 which includes using the ConnectionID in place of a MAC addresses for any packet while the packet is traversing the PLC LAN.